

## **Appendix D**

Paleontological Resources Assessment Report

CRM Tech

May 26, 2021

**PALEONTOLOGICAL RESOURCES ASSESSMENT REPORT**

**OESTE RECHARGE PROJECT**

**Phelan Area  
San Bernardino County, California**

**Prepared for:**

Mojave Water Agency  
13846 Conference Center Drive  
Apple Valley, CA 92037-4377

**Prepared by:**

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May 26, 2021

CRM TECH Project No. 3706P  
Approximately 10 acres  
Mescal Creek, Calif., 7.5' quadrangle  
Section 30; T5N R7W, San Bernardino Baseline and Meridian

## MANAGEMENT SUMMARY

Between February and May 2021, CRM TECH performed a paleontological resource assessment on approximately ten acres of undeveloped land near the community of Phelan, San Bernardino County, California. The subject property of the study consists mainly of Assessor's Parcel Number 3099-081-01, along with a linear pipeline right-of-way across the adjacent property to the west, and is located at the western terminus of Cayucos Drive, between 263rd Street East and Oasis Road. The project location lies in the south half of Section 30, T5N R7W, San Bernardino Baseline and Meridian, as depicted in the United States Geological Survey (USGS) Mescal Creek, California, 7.5' quadrangle.

The study is part of the environmental review process for the proposed Oeste Recharge Project, which entails mainly the excavation of a basin for the purpose of recharging local groundwater and the installation of a pipeline leading generally southwest from the basin to the nearby California Aqueduct (East Branch). The Mojave Water Agency (MWA), as the lead agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA). The purpose of the study is to provide the MWA with the necessary information and analysis to determine whether the project would potentially disrupt or adversely affect any significant, nonrenewable paleontological resources, as mandated by CEQA.

In order to identify any paleontological resource localities in or near the project area and to assess the potential for such resources to be encountered during the project, CRM TECH initiated a records search at the San Bernardino County Museum, reviewed pertinent geological literature, and carried out a systematic field survey in accordance with the guidelines of the Society of Vertebrate Paleontology. The results of these research procedures indicate that the entire project area is situated upon surface deposits of Holocene alluvium that is underlain by older, more fossiliferous sediments of Pleistocene age.

Based on these findings, the proposed project's potential to impact significant, nonrenewable paleontological resources appears to be low in the surface soils but high in the older native alluvium beneath the surface soils. Therefore, CRM TECH recommends that a paleontological resource impact mitigation program be developed and implemented during the project to prevent impacts on such resources or reduce them to a level less than significant. As a part of the mitigation program, periodic monitoring, or "spot-checking," should be carried out upon commencement of any earth-moving operations associated with the project to ensure the timely identification of undisturbed, potentially fossiliferous sediments when they are encountered. Once such sediments are exposed, all further earth-moving operations will need to be monitored continuously. Under these conditions, the proposed project may be cleared to proceed in compliance with CEQA provisions on paleontological resources.

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## INTRODUCTION

Between February and May 2021, CRM TECH performed a paleontological resource assessment on approximately ten acres of undeveloped land near the community of Phelan, San Bernardino County, California (Fig. 1). The subject property of the study consists mainly of Assessor's Parcel Number 3099-081-01, along with a linear pipeline right-of-way across the adjacent property to the west, and is located at the western terminus of Cayucos Drive, between 263rd Street East and Oasis Road (Figs. 2, 3). The project location lies in the south half of Section 30, T5N R7W, San Bernardino Baseline and Meridian, as depicted in the United States Geological Survey (USGS) Mescal Creek, California, 7.5' quadrangle (Fig. 2).

The study is part of the environmental review process for the proposed Oeste Recharge Project, which entails mainly the excavation of a basin for the purpose of recharging local groundwater and the installation of a pipeline leading generally southwest from the basin to the nearby California Aqueduct (East Branch). The Mojave Water Agency (MWA), as the lead agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA). The purpose of the study is to provide the MWA with the necessary information and analysis to determine whether the project would potentially disrupt or adversely affect any significant, nonrenewable paleontological resources, as mandated by CEQA.

In order to identify any paleontological resource localities in or near the project area and to assess the potential for such resources to be encountered during the project, CRM TECH initiated a records search at the San Bernardino County Museum, reviewed pertinent geological literature, and carried out a systematic field survey in accordance with the guidelines of the Society of Vertebrate Paleontology. The following report is a complete account of the methods, results, and final conclusion of this study. Personnel who participated in the study are named in the appropriate sections below, and their qualifications are provided in Appendix 1.

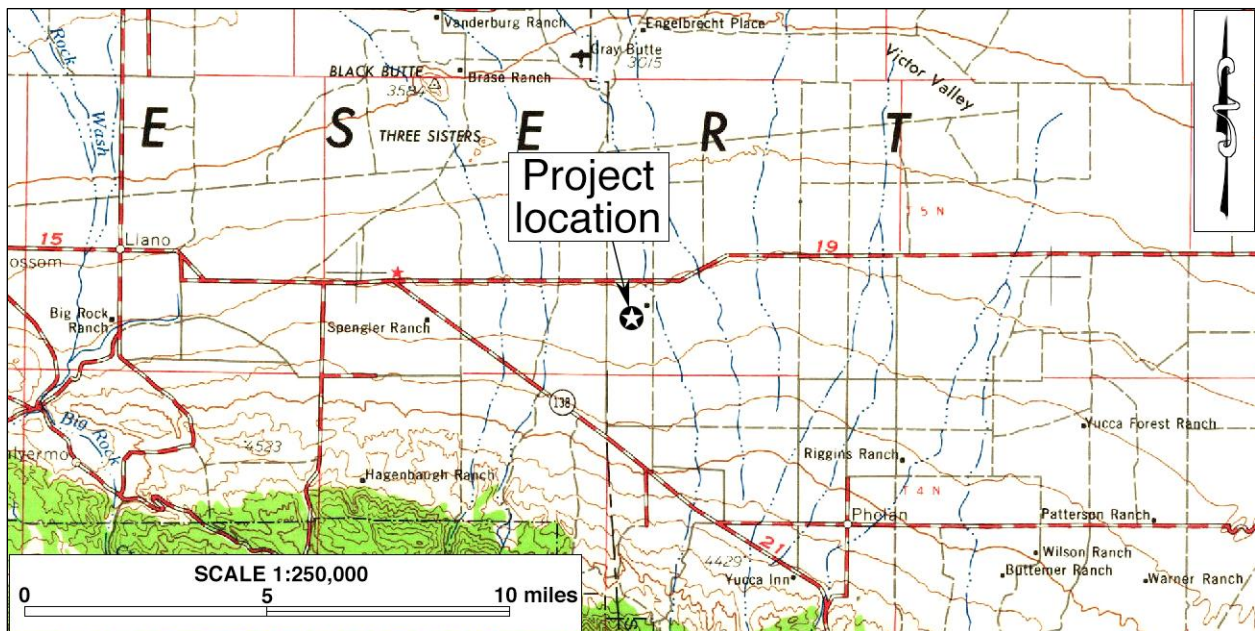


Figure 1. Project vicinity. (Based on USGS San Bernardino, Calif., 120'x60' quadrangle)

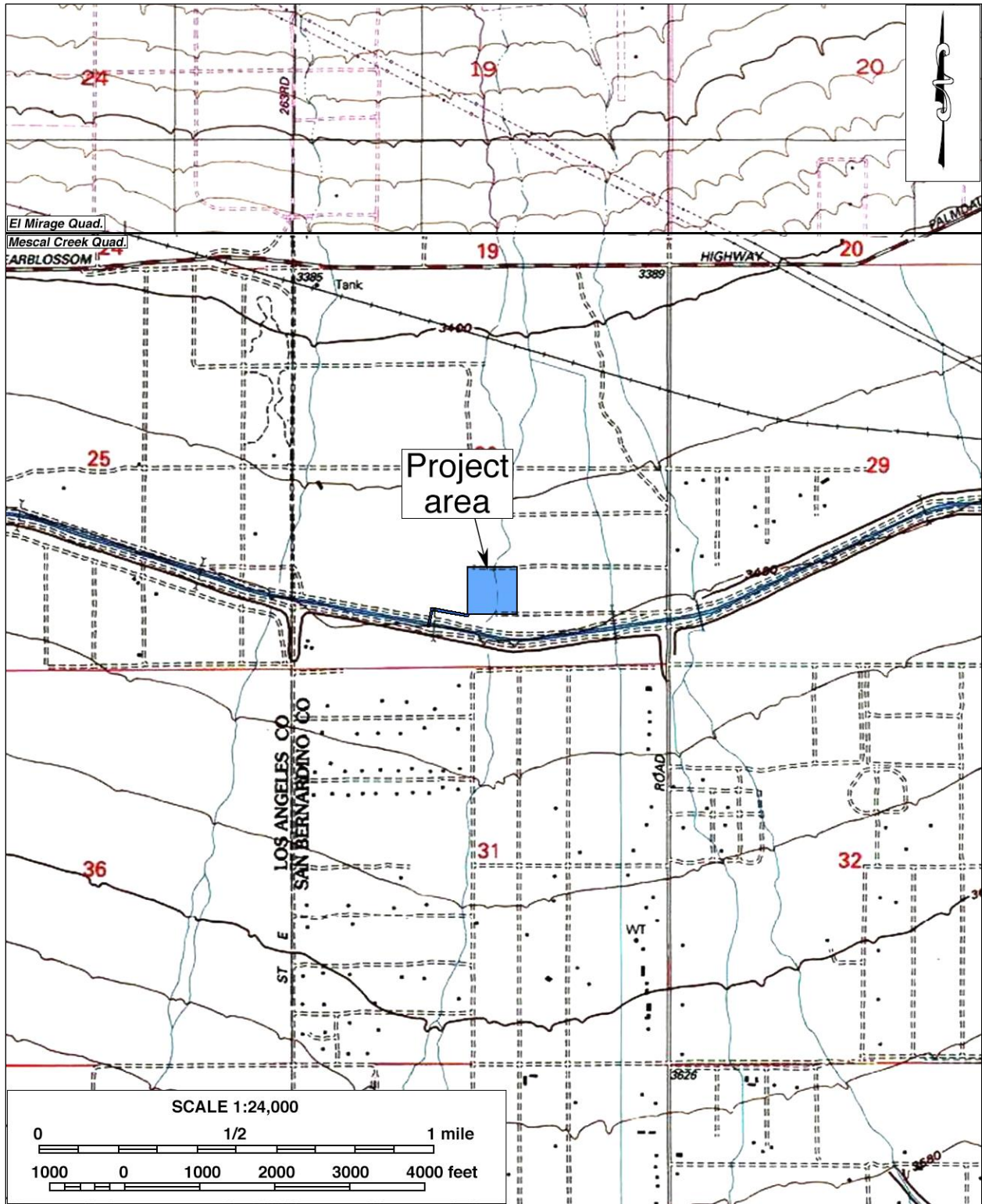


Figure 2. Project area. (Based on USGS El Mirage and Mescal Creek, Calif., 7.5' quadrangles)





Figure 3. Aerial view of the project area.

## **PALEONTOLOGICAL RESOURCES**

### **DEFINITION**

Paleontological resources represent the remains of prehistoric life, exclusive of any human remains, and include the localities where fossils were collected as well as the sedimentary rock formations in which they were found. The defining character of fossils or fossil deposits is their geologic age, typically older than recorded human history and/or older than the middle Holocene Epoch, which dates to circa 5,000 radiocarbon years (Society of Vertebrate Paleontology 2010:11).

Common fossil remains include marine and freshwater mollusk shells; the bones and teeth of fish, amphibians, reptiles, and mammals; leaf imprint assemblages; and petrified wood. Fossil traces, another type of paleontological resource, include internal and external molds (impressions) and casts created by these organisms. These items can serve as important guides to the age of the rocks and sediments in which they are contained and may prove useful in determining the temporal relationships between rock deposits from one area and those from another as well as the timing of geologic events. They can also provide information regarding evolutionary relationships, development trends, and environmental conditions.

Fossil resources generally occur only in areas of sedimentary rock (e.g., sandstone, siltstone, mudstone, claystone, or shale). Because of the infrequency of fossil preservation, fossils, particularly vertebrate fossils, are considered nonrenewable paleontological resources. Occasionally fossils may be exposed at the surface through the process of natural erosion or because of human disturbances; however, they generally lay buried beneath the surficial soils. Thus, the absence of fossils on the surface does not preclude the possibility of their being present within subsurface deposits, while the presence of fossils at the surface is often a good indication that more remains may be found in the subsurface.

### **SIGNIFICANCE CRITERIA**

According to guidelines proposed by Eric Scott and Kathleen Springer (2003) of the San Bernardino County Museum, paleontological resources can be considered to be of significant scientific interest if they meet one or more of the following criteria:

1. The fossils provide information on the evolutionary relationships and developmental trends exhibited among organisms, living or extinct;
2. The fossils provide data useful in determining the age(s) of the rock unit or sedimentary stratum, including data important in determining the depositional history of the region and the timing of geologic events therein;
3. The fossils provide data regarding the development of biological communities or the interactions between paleobotanical and paleozoological biotas;
4. The fossils demonstrate unusual or spectacular circumstances in the history of life; and/or
5. The fossils are in short supply and/or in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation, and are not found in other geographic locations.



## PALEONTOLOGICAL SENSITIVITY

The fossil record is unpredictable, and the preservation of organic remains is rare, requiring a particular sequence of events involving physical and biological factors. Skeletal tissue with a high percentage of mineral matter is the most readily preserved within the fossil record; soft tissues not intimately connected with the skeletal parts, however, are the least likely to be preserved (Raup and Stanley 1978). For this reason, the fossil record contains a biased selection not only of the types of organisms preserved but also of certain parts of the organisms themselves. As a consequence, paleontologists are unable to know with certainty, the quantity of fossils or the quality of their preservation that might be present within any given geologic unit.

Sedimentary units that are paleontologically sensitive are those geologic units (mappable rock formations) with a high potential to contain significant nonrenewable paleontological resources. More specifically, these are geologic units within which vertebrate fossils or significant invertebrate fossils have been determined by previous studies to be present or are likely to be present. These units include, but are not limited to, sedimentary formations that contain significant paleontological resources anywhere within their geographical extent as well as sedimentary rock units temporally or lithologically amenable to the preservation of fossils.

A geologic formation is defined as a stratigraphic unit identified by its lithic characteristics (e.g., grain size, texture, color, and mineral content) and stratigraphic position. There is a direct relationship between fossils and the geologic formations within which they are enclosed and, with sufficient knowledge of the geology and stratigraphy of a particular area, it is possible for paleontologists to reasonably determine the formation's potential to contain significant nonrenewable vertebrate, invertebrate, marine, or plant fossil remains.

The paleontological sensitivity for a geologic formation is determined by the potential for that formation to produce significant nonrenewable fossils. This determination is based on what fossil resources the particular geologic formation has produced in the past at other nearby locations. Determinations of paleontologic sensitivity must consider not only the potential to yield a large collection of fossil remains but also the potential to yield a few fossils that can provide new and significant taxonomic, phylogenetic, and/or stratigraphic data.

The Society of Vertebrate Paleontology issued a set of standard guidelines intended to assist paleontologists to assess and mitigate any adverse effects/impacts to nonrenewable paleontological resources. The guidelines defined four categories of paleontological sensitivity for geologic units that might be impacted by a proposed project, as listed below (Society of Vertebrate Paleontology 2010:1-2):

- **High Potential:** Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered.
- **Undetermined Potential:** Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment.
- **Low Potential:** Rock units that are poorly represented by fossil specimens in institutional collections, or based on general scientific consensus only preserve fossils in rare circumstances.
- **No Potential:** Rock units that have no potential to contain significant paleontological resources, such as high-grade metamorphic rocks and plutonic igneous rocks.

## SETTING

### REGIONAL GEOLOGY

The Phelan area is located on the western edge of the Mojave Desert geomorphic province of southeastern California, near where it abuts the Transverse Ranges province (Jenkins 1980:40-41; Harms 1996). The Transverse Ranges Geomorphic Province consists of a series of steep east-west trending mountain ranges and valleys (Harden 2004:426). This east-west structure is in contrast to the usual coastal California northwest trend, hence the name “Transverse” (Jennings 1980). The Transverse Ranges Geomorphic Province extends west offshore to include the San Miguel, Santa Rosa, and Santa Cruz Islands, and the eastern end of the province is the San Bernardino Mountains (*ibid.*).

Dibblee (1967) and Coombs et al. (1979:7) place the area in what they refer to as the Western Mojave Desert, characterized by a high-elevation desert landscape marked by scattered, isolated mountains and numerous broad, shallow basins, some with dry lakebeds at the low points. Many of these basins have pediment surfaces developed along the margins, separating the mountains from the basins (Coombs et al. 1979:9). These pediment surfaces are commonly covered by desert pavement that protects them from sheetwash and channeling (*ibid.*). The mountains and intermountain valleys of the Western Mojave Desert tend to have a northwest-southeast trend that is controlled mainly by faulting (*ibid.*:7).

The basin areas are filled with sediments ranging in geologic age from Miocene to Recent (Dibblee 1967:49-82; Meisling and Weldon 1989:110). According to Dibblee (1967:109), older alluvium, presumably of Pleistocene age, underlies much of the Mojave Desert. Pleistocene sediments in the region were laid down by two separate depositional regimes, namely the ancestral Mojave River and the Victorville Fan (Scott 2007). The Phelan area is located on the Victorville Fan, which was generally considered to have a high potential for containing nonrenewable vertebrate fossil remains (Meisling and Weldon 1989:108; Reynolds and Reynolds 1994). However, recent studies suggest that these sediments, while potentially fossiliferous, are not as fossiliferous as the ancestral Pleistocene-age Mojave River sediments (Scott 2007).

### CURRENT NATURAL SETTING OF THE PROJECT AREA

Situated in a sparsely populated rural residential area, the project location is surrounded by undeveloped desert land crisscrossed by unpaved roads (Fig. 3). The concrete-lined channel of the California Aqueduct (East Branch) lies approximately 200 feet to the south of the main project site, where the recharge basin will be constructed, while the southwestern end of the pipeline alignment includes an existing concrete overchute across the aqueduct (Fig. 3). Elevations in the project area range around 3,470 to 3,485 feet above mean sea level, and the terrain is relatively level with a slight incline towards the south.

Several small drainages traverse the project area, generally oriented north-south. The ground surface in the project area appears to have been disturbed by off-road vehicle use and recent dumping of landscaping, automotive, and construction waste. Modern domestic refuse was also observed. The surface soils are of grayish-brown, fine to coarse alluvial sands mixed with small rocks and gravel.



Figure 4. Typical landscape in the project area. (Photograph taken on March 25, 2021; view to the east)

Vegetation observed includes Joshua trees, creosote bush, brittlebush, cholla, and other small native and naturalized grasses and shrubs (Fig. 4).

## **METHODS AND PROCEDURES**

### **RECORDS SEARCH**

The paleontological records search service for this study was provided by the San Bernardino County Museum (SBCM), Division of Earth Sciences, in Redlands. The SBCM maintains files of regional paleontological localities as well as supporting maps and documents. The records search results were used to identify previously performed paleontological resource assessments as well as known paleontological localities within the vicinity of the project area. A copy of the records search results is attached to this report in Appendix 2.

### **LITERATURE REVIEW**

In conjunction with the records searches, CRM TECH report writer Deirdre Encarnación reviewed geological literature pertaining to the project vicinity. Sources consulted during the review include primarily topographic, geologic, and soil maps of the Victor Valley region, published geological literature on regional geology, and other materials in the CRM TECH library, including unpublished reports produced during similar surveys in the vicinity.

### **FIELD SURVEY**

On March 25, 2021, CRM TECH field director Daniel Ballester and paleontological surveyor Arturo Aldaco carried out the field survey of the project area. The recharge basin site was surveyed by

walking a series of parallel north-south transects spaced 15 meters (approximately 45 feet) apart, while the pipeline right-of-way was surveyed along two parallel 10-meter (approximately 33-foot) transects placed on either side of the project centerline. In this way, the ground surface in the entire project area was systematically and carefully examined to determine the soil types, to verify the geologic formations, and to look for any indications of paleontological remains. Ground visibility was poor (approximately 50%) where pockets of thick vegetation growth are present but was excellent (90%) over most of the property (Fig. 4).

## **RESULTS AND FINDINGS**

### **RECORDS SEARCHES**

According to the records search results from the SBCM, the project area is situated upon surface exposures of younger Holocene alluvial gravel and canyon flood plains (Cortez 2021:1). These younger sediments are generally low in potential to contain significant paleontological resources, but they may overlay older Pleistocene alluvium deposited between roughly 1.8 million years ago and 11,000 years ago, which is much more fossiliferous (*ibid.*). The nearest fossil locality identified by the SBCM was found approximately eight miles to the southwest and yielded the remains of skink and rabbit in near-surface deposits of Pleistocene-aged, very fine-grained sands overlain by younger Quaternary deposits (*ibid.*).

### **LITERATURE REVIEW**

The surface geology within the project area has been mapped by Morton and Miller (2003; 2006) as consisting mainly of *Qyf* (“young alluvial-fan deposits”) with a narrow strip of *Qw* (“very young wash deposits [late Holocene]”) along an intermittent natural drainage running north-south across the center of the property (Fig. 5). The *Qyf* sediments are further described as unconsolidated to moderately consolidated silt, sand, pebbly cobbly sand, and bouldery alluvial-fan deposits with slightly to moderately dissected surfaces that form large and small fans throughout the region (*ibid.*). The *Qw* sediments, meanwhile are described as unconsolidated sand and gravel deposits in active washes and channels on active surfaces of alluvial fans (*ibid.*).

Covering large areas on the north side of the San Gabriel Mountains west of Sheep Creek, the *Qyf* sediments typically contain large proportion of cobbles and boulders (Morton and Miller 2003; 2006). They are frequently bisected by the sandy and gravelly *Qw* sediments along the various streams and intermittent drainages, such as in the project area. Both of these sediments are considered too coarse in texture for the optimal preservation of fossil remains. Given their relatively recent origin (i.e., Holocene), both of them are rather unlikely settings for the deposition of potentially significant fossil remains to begin with.

### **FIELD SURVEY**

Throughout the course of the field survey, no surface manifestation of any paleontological remains was observed within the project area.

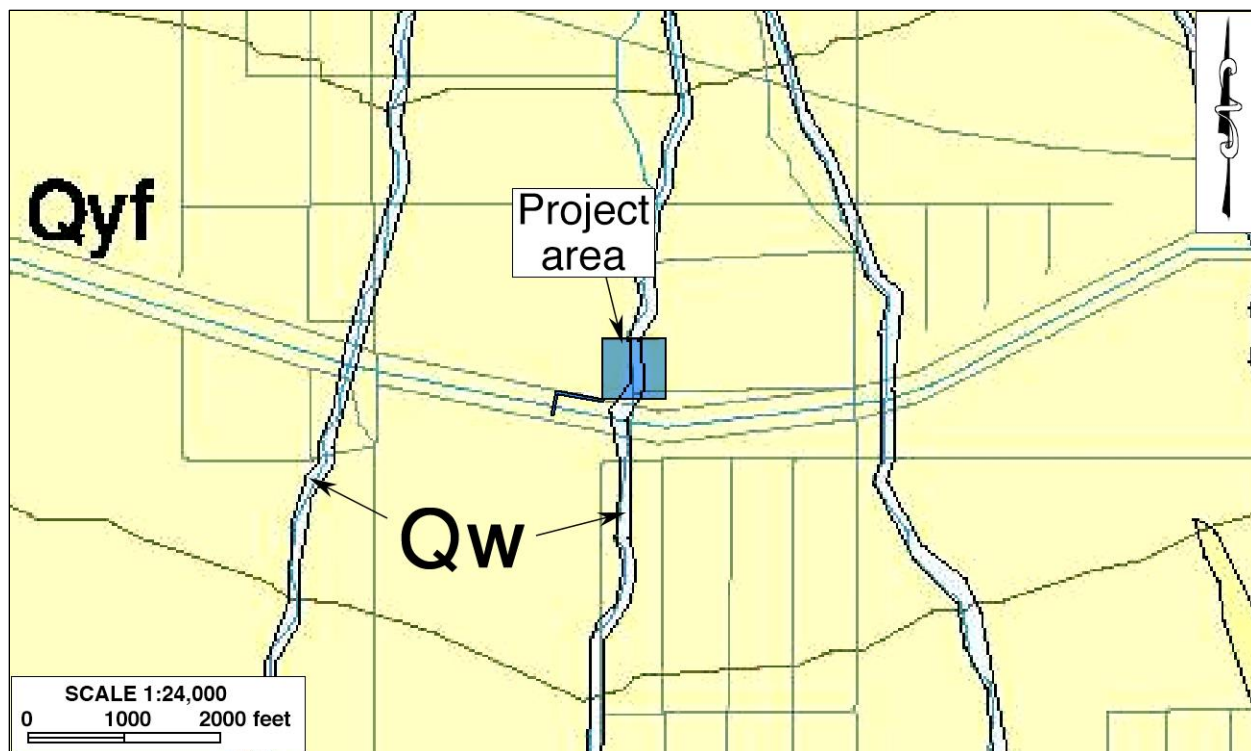


Figure 5. Geological map of the project area. (Source: Morton and Miller 2006)

## CONCLUSION

CEQA guidelines (Title 14 CCR App. G, Sec. V(c)) require that public agencies in the State of California determine whether a proposed project would “directly or indirectly destroy a unique paleontological resource” during the environmental review process. The present study, conducted in compliance with this provision, is designed to identify any significant, non-renewable paleontological resources that may exist within or adjacent to the project area, and to assess the possibility for such resources to be encountered in future excavation and construction activities.

In summary of the research results presented above, no paleontological localities were previously reported within the project area, and no indications of any fossil remains was found in the surface sediments during this study. The records search identified nearby fossil localities in lithologies similar to those present in the project area at some unknown depth, and both the literature review and records search suggest that the entire project area is situated upon surface exposures of Holocene-age alluvium that is underlain by older, more fossiliferous sediments of Pleistocene age. Being of alluvial origin, these older geologic units have the potential to contain significant, nonrenewable paleontological resources.

Based on these findings, the proposed project’s potential to impact significant, nonrenewable paleontological resources appears to be low in the surface soils but high in the older native alluvium beneath the surface soils. Therefore, CRM TECH recommends that a paleontological resource impact mitigation program be developed and implemented during the project to prevent impacts on



such resources or reduce them to a level less than significant. The mitigation program should be developed in accordance with the provisions of CEQA (Scott and Springer 2003) as well as the proposed guidelines of the Society of Vertebrate Paleontology (2010), and should include but not be limited to the following components:

- Due to the variable thickness of the Holocene-aged soils on the surface, periodic monitoring, or “spot-checking,” will be required upon commencement of any earth-moving operations associated with the project to ensure the timely identification of undisturbed, potentially fossiliferous sediments when they are encountered.
- Once the potentially fossiliferous sediments are exposed, all further earth-moving operations will need to be monitored continuously. The monitor should be prepared to quickly salvage fossil remains as they are unearthed to avoid construction delays and should collect samples of sediments that are likely to contain small fossils. However, the monitor must have the power to temporarily halt or divert ground disturbances to allow for the removal of abundant or large specimens.
- Collected samples of sediment should be processed to recover small fossils, and all recovered specimens should be identified and curated at a repository with permanent retrievable storage.
- A report of findings, including an itemized inventory of recovered specimens, should be prepared upon completion of the procedures outlined above. The report should include a discussion of the significance of the paleontological findings, if any. The approval of the report by the Mojave Water Agency would signify completion of the program to mitigate potential impacts on paleontological resources.

Under these conditions, the proposed project may be cleared to proceed in compliance with CEQA provisions on paleontological resources.

## REFERENCES

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2010 Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. [http://vertpaleo.org/Membership/Member-Resources/SVP\\_Impact\\_Mitigation\\_Guidelines.aspx](http://vertpaleo.org/Membership/Member-Resources/SVP_Impact_Mitigation_Guidelines.aspx).

**APPENDIX 1**

**PERSONNEL QUALIFICATIONS**

**RON SCHMIDTLING, M.S.**  
**Principal Paleontologist**

**Education**

1995 M.S., Geology, University of California, Los Angeles.  
1991 Pasadena City College, Pasadena, California.  
1985 B.A., Archaeology, Paleontology, Ancient Folklore, and Art History, University of Southern Mississippi, Hattiesburg.

**Professional Experience:**

2020- Principal Paleontologist, CRM TECH, Colton, California.  
2014- Instructor of Earth Science, History of Life, Ecology, and Evolutionary Biology, Columbia College Hollywood, Reseda, California.  
2013, 2015 Volunteer, excavation of a camarasaur and a diplodocid in southern Utah, Natural History Museum of Los Angeles County, California.  
1993-2014 Consultant, Getty Conservation Institute, Brentwood, California.  
• Geological Consultant on the Renaissance Bronze Project, characterizing constituents of bronze core material;  
• Paleontological Consultant for Antiquities/Conservation, identifying the foraminifera and mineral constituents of a limestone torso of Aphrodite;  
• Scientific Consultant on the Brentwood Site Building Project, testing building materials for their suitability in the museum galleries.  
1999-2001 Archaeological and Paleontological Monitor, Michael Brandman Associates, Irvine, California.  
1997 Department of Archaeology, University of California, Los Angeles.  
1994 Scientific Illustrator and Teaching Assistant, Department of Earth and Space Sciences and Department of Biological Sciences, University of California, Los Angeles.

**Memberships**

AAPS (Association of Applied Paleontological Sciences), USA; CSEOL (Center for the Study of Evolution and the Origin of Life), Department of Earth Sciences, University of California, Los Angeles.

**Publications and Reports**

Author, co-author, and contributor on numerous paleontological publications and paleontological resource management reports.

**PALEONTOLOGICAL SURVEYOR/FIELD DIRECTOR**  
**Daniel Ballester, M.S., RPA (Registered Professional Archaeologist)**

**Education**

- 2013 M.S., Geographic Information System (GIS), University of Redlands, California.  
1998 B.A., Anthropology, California State University, San Bernardino.  
1997 Archaeological Field School, University of Las Vegas and University of California, Riverside.  
1994 University of Puerto Rico, Rio Piedras, Puerto Rico.
- 2007 Certificate in Geographic Information Systems (GIS), California State University, San Bernardino.
- Cross-trained in paleontological field procedures and identifications by CRM TECH Geologist/Paleontologist Harry M. Quinn.

**Professional Experience**

- 2002- Field Director/GIS Specialist, CRM TECH, Riverside/Colton, California.  
2011-2012 GIS Specialist for Caltrans District 8 Project, Garcia and Associates, San Anselmo, California.  
2009-2010 Field Crew Chief, Garcia and Associates, San Anselmo, California.  
2009-2010 Field Crew, ECorp, Redlands.  
1999-2002 Project Paleontologist/Archaeologist, CRM TECH, Riverside, California.  
1998-1999 Field Crew, K.E.A. Environmental, San Diego, California.  
1998 Field Crew, A.S.M. Affiliates, Encinitas, California.  
1998 Field Crew, Archaeological Research Unit, University of California, Riverside.

**Cultural Resources Management Reports**

Co-author and contributor to numerous cultural and paleontological resources management reports since 2002.



**REPORT WRITER**  
**Deirdre Encarnación, M.A.**

**Education**

- 2003 M.A., Anthropology, San Diego State University, California.  
2000 B.A., Anthropology, minor in Biology, with honors; San Diego State University, California.
- 2001 Archaeological Field School, San Diego State University.  
2000 Archaeological Field School, San Diego State University.

**Professional Experience**

- 2004- Project Archaeologist/Report Writer, CRM TECH, Riverside/Colton, California.  
2001-2003 Part-time Lecturer, San Diego State University, California.  
2001 Research Assistant for Dr. Lynn Gamble, San Diego State University.  
2001 Archaeological Collection Catalog, SDSU Foundation.

**PALEONTOLOGICAL SURVEYOR**  
**Arturo E. Aldaco, B.S.**

**Education**

- 2020 B.S., Anthropology, University of California, Riverside.  
2018 A.S., Anthropology, Chaffey College, Rancho Cucamonga, California.

**Professional Experience**

- 2021- Project Archaeologist, CRM TECH, Riverside/Colton, California.  
2020 Field Archaeologist, McKenna et al., Whittier, California.  
2019-2020 Peer Educator, University of California, Riverside.  
2019 Field Crew Member, Northern Arizona University: Belize Valley Archaeological Reconnaissance, San Ignacio, Belize.

**APPENDIX 2**

**RECORDS SEARCH RESULTS**

**San Bernardino  
County Museum  
Division of Earth  
Sciences**

**Crystal Cortez**  
Curator of Earth Sciences

email: [Crystal.cortez@sbcm.sbcounty.org](mailto:Crystal.cortez@sbcm.sbcounty.org)

08 March, 2021

CRM Tech  
Attn: Nina Gallardo  
1016 E. Cooley Drive, Suite B  
Colton, CA 92324

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**PALEONTOLOGY RECORDS REVIEW Oeste Recharge Project (3706P) in the City  
of San Bernardino, San Bernardino County, California**

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Dear Nina,

The Division of Earth Sciences of the San Bernardino County Museum (SBCM) has completed a records search for the above-named project in Riverside County, California. The proposed Oeste Recharge Project (CRM TECH Contract No. 3706P) in the County of San Bernardino, California located near the City of Phelan, as shown on the United States Geological Survey (USGS) 7.5 minute Mescal Creek, California quadrangle.

Geologic mapping of that region indicates that the proposed development is located on surficial deposits of Quaternary alluvial gravel and canyon flood plains (Qa) of Holocene (recent) age (Dibblee and Minch, 2002). These sediments have low potential to contain significant paleontological resources. However, these sediments may overlay older Pleistocene fan deposits or Pleistocene alluvium. These potentially-fossiliferous sediments were deposited between ~1.8 million years ago to ~11,000 years ago. Older Pleistocene deposits in the area have been found to be highly fossiliferous.

For this review, I conducted a search of the Regional Paleontological Locality Inventory (RPLI) at the SBCM. The results of this search indicate that no recorded paleontological resource localities are present within the proposed project. The nearest SBCM localities are approximately 8 miles south west and have similar deposits to those at the proposed project site. Localities SBCM 1.103.179, 1.103.180, and 1.103.181, yield fossil remains of *Scincidae*, *Sylvilagus*, and *Leporidae*, respectively. Fossils were discovered in Pleistocene aged tan to gray very fine grained sands which were overlaid by younger Quaternary deposits.

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Oeste Recharge Project (CRM TECH Contract No. 3706P)

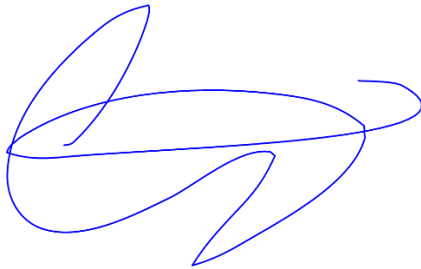
08 March, 2021

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This records search covers only the paleontological records of the San Bernardino County Museum. It is not intended to be a thorough paleontological survey of the proposed project area covering other institutional records, a literature survey, or any potential on-site survey.

Please do not hesitate to contact us with any further questions that you may have.

Sincerely,

A handwritten signature in blue ink, consisting of several overlapping loops and a long horizontal stroke.

Crystal Cortez, Curator of Earth Sciences  
Division of Earth Sciences  
San Bernardino County Museum